

**San Francisco Department of Public Health
Emergency Operation Plan
Hazard Specific Annex
Air Quality Annex**

Revision History

Revision Date	Section of Plan Revised	Revised by
12/2018	Initial version	Gabrielle Aldern
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San Francisco Department of Public Health Emergency Operation Plan Hazard Specific Annex Air Quality Annex

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I OVERVIEW

NOTE: In the event of simultaneous Extreme Heat and Air Quality events, Extreme Heat response actions take precedence over Air Quality response. Please refer to the [Extreme Heat Annex](#) for more information.

A. Reduced Air Quality Events

Climate change is expected to increase temperatures, change precipitation patterns, increase the frequency and severity of extreme weather events, and increase sea-level rise—all of which will have significant impacts on San Francisco's environment, health, and economy. California is already experiencing the effects of climate change. One effect is that wildfires are expected to increase in frequency and the Californian fires season is expected to last longer, resulting in higher levels of air pollution throughout much of California¹.

On average, San Francisco benefits from comparably clean air relative to other urban areas in the country², but the Bay Area is vulnerable to short term spikes in pollution due to increases in temperature and proximity to wildfires. From 1999-2018, 18 of the top 30 Particulate Matter (PM 2.5) pollution days in the Bay Area resulted from wildfires. Those 18 days occurred either in 2017 due to the North Bay Fires, or 2018 due to the Butte Camp Fire.³ During the Butte Camp Fire AQ Event, San Francisco experienced 13 consecutive days of unhealthy or extremely unhealthy air quality, the worst air quality event on record prior to that event for the Bay Area.

Reduced air quality can be caused by several major contaminants, including ozone, particulate matter (PM 2.5 or PM 10), carbon monoxide, and sulfur dioxide. Exposure to high levels of these pollutants can

¹ [California Environmental Health Tracking Program](#)

² Air Quality Draft Document written for the Climate and Health Adaptation Framework

³ Bay Area Air Quality Management District



cause acute and chronic health impacts. The Environmental Protection Agency (EPA) Air Quality Index (AQI) is a standardized measure of pollutant levels that describes air quality levels. The AQI measures air quality on a scale of 0 to 500. A value above 100 is considered to be unhealthy for sensitive groups. As the AQI value increases, more groups may be at risk of health impacts. SFDPH begins response when the AQI value is greater than or equal to 101 for a period longer than 24 hours, and projections that the level will continue to be the same or worse for an additional four hours or more.

B. Health Impacts

Exposure to reduced air quality has been linked to increases in both morbidity and mortality. Pollutants with the strongest evidence for public health concern include particulate matter (PM), ozone, nitrogen monoxide, and sulfur dioxide. PM is the principal pollutant of concern from wildfire smoke for short-term exposures.⁴ PM is capable of penetrating deep into lung passageways and entering the bloodstream, causing cardiovascular, cerebrovascular, and respiratory impacts. Immediate short-term health impacts from AQ events may strain both emergency medical care and hospital systems. Repeated or long term exposure to unhealthy air will likely increase both morbidity and mortality of the exposed populations.

Acute and chronic impacts from exposure to reduced air quality are as listed below:

Acute impacts can include asthma attacks, shortness of breath, coughing, chest tightness, irritated mucus membranes, pulmonary inflammation, bronchitis, respiratory infection, arrhythmias, and heart attacks. Acute impacts may be seen for days or weeks after an AQ emergency event.

Chronic impacts can include asthma, emphysema, lung cancer, ischaemic heart disease, stroke, chronic obstructive pulmonary disease, and premature death. Maternal exposure to ambient air pollution has been associated with adverse health outcomes for the fetus, such as low birth weight, pre-term birth, and small gestational age births.⁵

C. Vulnerable Populations

While everyone may experience health impacts from AQ events, some groups are at higher risk:

- People with heart or lung disease
- Pregnant individuals
- Older adults
- Children under 14
- Outdoor workers
- People who exercise
- People with diabetes
- People experiencing homelessness

People with heart or lung disease, pregnant individuals, older adults, and children are considered at greater risk from particulate matter (PM) than other people, especially when they are physically active or work outdoors.⁶ Exercise and physical activity cause people to breathe faster and more deeply, causing them to take more PM into their lungs.

⁴ Wildfire Smoke FAQ – [AirNow](#)

⁵ Ambient Air Pollution: Health Impacts – [World Health Organization](#)

⁶ Spare the Air – www.sparetheair.com/health.cfm



People with heart or lung diseases such as coronary artery disease, congestive heart failure, and asthma or chronic obstructive pulmonary disease (COPD) are at increased risk because PM can aggravate these diseases. People with diabetes also may be at increased risk, possibly because they are more likely to have underlying cardiovascular disease.⁷

San Francisco's population includes a large number of people experiencing homelessness. Lack of access to indoor facilities can greatly increase exposure to pollutants during AQ emergency events, putting them at increased risk for both acute and chronic health effects.

D. Detection

Each day, a monitor in San Francisco records concentrations of the major pollutants. These raw measurements are converted into a separate AQI value for each pollutant (ground-level ozone, particle pollution [PM], carbon monoxide, and sulfur dioxide) using standard formulas developed by EPA. The highest of these AQI values is reported as the AQI value for that day.⁸

The AQI is divided into 6 levels of health concern on a scale of 0 to 500. A value above 100 is considered to be unhealthy for sensitive groups. As the AQI value increases, more groups may be at risk of health impacts. SFDPH begins response when the AQI value is greater than or equal to 101 for a period longer than 24 hours, and projections that the level will continue to be the same or worse for an additional four hours or more. Please see the AQI Response Grid on Pages 5-7 for greater detail on response levels.

E. Potential City-Wide Impacts

Potential city-wide impacts of reduced air quality events may include:

- Negative health impacts to thousands of exposed and/or affected persons
- Healthcare delivery systems, including urgent and outpatient care clinics, may see a surge in patients
- Overload of EMS and ambulance system due to increased 911 calls and emergency department surges
- Hospitals may see increased hospitalizations due to air quality related issues
- Social activities, day-to-day business, and school may be interrupted due to voluntary or recommended closures
- Widespread public concern
- Shortages of resources including N95 respirators, respiratory medications, air filtration supplies, and ventilators
- Implementation of Continuity of Operations Plans (COOPs)

Additional City-Wide Issues:

Schools

Parents should be encouraged to do whatever is best for their children, including keeping them home during extreme and/or prolonged air quality events.

⁷ Particle Pollution and Your Health - [AirNow](#)

⁸ A Guide to Air Quality and Your Health - [AirNow](#)



Schools are a valuable community resource. For many children, including those from our most vulnerable communities, schools are where children get food, and have age-appropriate supervision while parents must work. For many families, there is no replacement for these resources.

As a valuable community resource for children and families, DPH supports schools in their complex decision-making efforts to keep schools open, including during low staffing challenges.

The use of air filtration systems and air purifiers requires pre-planning, assessments and maintenance. The early use of air filtrations systems, including air purifiers, may be important for physical education locations, such as day care centers for infants and toddlers.

Universities and schools which require students to walk outdoors to classes several times during the day will need to consider the impact of student exposure to poor air quality. Universities and schools facing these challenges may wish to consider the benefits of changes in class locations, tele-conferencing of classes, or other interventions to minimize exposure to poor air quality.

School cancellation or limitation of outdoor activities may be recommended. Please refer to existing EPA guidelines.

N95 Respirators

Information and guidance provided in this plan regarding N95 respirators is based on available knowledge and may change at any time.

Masks and N95 respirators are not a replacement for staying indoors.

N95 respirators are not designed for children.

N95 respirators are ineffective with facial hair.

N95 respirators, properly fitted, increase the work of the cardiovascular system and **can be dangerous for some people**. If an N95 respirator makes a person feel worse, they should not use it.

There are not sufficient data to support the benefit of prolonged use of N95 respirators in wildfire smoke air quality events.

People who have adequate air quality at home should not leave their home to find an N95 respirator.

For staff who must work outdoors, or for unsheltered people who remain outdoors, N95 respirators may be helpful. However, over time N95 respirators will become damp (due to the breath) and harder to breathe through as particles are trapped in it. In general, N95 respirators may need to be replaced after 8 hours of total use (depending on the amount of wildfire smoke in the air), or when damp or damaged or soiled, or when the work of breathing through it increases.

N95 respirators may be provided to unsheltered individuals. Unsheltered people always have a choice whether or not to use offered N95 respirators.

Cancellation of Outdoor Events

Outdoor activities can include farmer's markets, outdoor sporting events, neighborhood clean-ups, parades, and festivals. Outdoor events may involve hundreds or thousands of participants and require



varying levels of physical activity. Outdoor activities may involve varying target age groups (e.g. children's events).

The cancellation of outdoor events can be a complex process and can have unintended impacts, including adverse economic impacts. In addition, the cancellation of a permit for an event may not mean that the event does not occur. Participants may not receive notification of the cancellation or may choose to attend despite a permit cancellation.

In coordination with DEM, San Francisco DPH will message warnings and advice for event organizers to cancel or consider canceling outdoor activities. EPA guidance will be used to message the risks of outdoor activities.

Human Resources

In the event of an extreme and/or prolonged air quality event, staff will likely be counseled to remain indoors (see activation grid). Communication for City workers regarding sheltering in place should be optimally sent to all staff.

The Department of Emergency Management and the Department of Public Health encourage the creation of Continuity of Operations Plans (COOPs) for businesses, contracted organizations, and City Departments.

Critical outdoor workers, as defined by a Department's or organization's COOP, should be provided the option to wear N95 respirators while outdoors. If an N95 respirator makes an employee feel worse, the employee should not wear an N95 respirator.

II. AQI RESPONSE GRID

NOTE: In the event of simultaneous Extreme Heat and Air Quality events, Extreme Heat response actions take precedence over Air Quality response. Please refer to the [Extreme Heat Annex](#) for more information.

Heat and air quality

When heat and air quality events co-occur, there are at least three major considerations:

1. **Heat protocols take precedence.** Studies have shown that heat remains a high risk for rapid increases in death rates. Whenever air quality issues happen at the same time as a temperature of 85 degrees or higher, the Heat Emergency Plan and Response takes precedence.
2. **Messaging must change.** Air quality messaging must change when the temperature is 85 degrees or higher. Messages to the population that people should stay indoors because of air quality, without cooling available to people, could result in increased deaths, particularly among vulnerable populations.
3. **Cleaner Air Centers may need to change.** In a co-occurring heat and air quality event, cooling shelters will replace cleaner air centers. Sending populations to a cleaner air center that is not also a cooling center could result in increased deaths, particularly among vulnerable populations.

The San Francisco Department of Emergency Management (DEM) Duty Officer is the designated individual to receive, monitor and communicate Bay Area Air Quality Management District (BAAQMD) and National Weather Service (NWS) announcements and temperature forecasts for the City and County of San Francisco. The DPH Public Health Emergency Preparedness and Response (PHEPR) section will also receive BAAQMD/NWS alerts to maintain situational awareness.



In accordance with the DPH DOC Activation and Notification Protocol, DPH will follow a tiered-level response for Air Quality events. Activation and Notification for the Air Quality Annex and checklist is initiated based on NWS alert type and air quality forecast.

The following color grid lists the tiered response based on the EPA Air Quality Index. Please note that temperature issues may affect response, requiring a higher level of activation and response activities:



Air Quality Index Value and Level of Health Concern*	Response Level	DPH Communications	DPH Response Actions	Other Agency Response Actions	Cleaner Air Centers and Wellness Checks
Good = 0 to 50 (Green)	No Action	N/A	N/A	N/A	N/A
Moderate = 51 to 100 (Yellow)		N/A	N/A	N/A	N/A
Unhealthy for Sensitive Groups = 101 to 150 (Orange) Respond if >24 hours or in a sustained or worsening wildfire situation*	LOW	<ul style="list-style-type: none"> - Likely notify ISC, Critical Partner List - PIO will consider posting info. on website & social media - Consider IMT 	<ul style="list-style-type: none"> - Assess 911 call volume; notify ambulance partners - Assess hospital ED status - Consider N-95 respirator staging 	<ul style="list-style-type: none"> - DEM consider coordination call with DPH, HSH, HAS, SFUSD, PIOs, NWS, BAAQMD and others 	
Unhealthy = 151 to 200 (Red) Respond if >24 hours or in a sustained or worsening wildfire situation*	MEDIUM	All of the above, plus: <ul style="list-style-type: none"> - Consider notifying Independent Senior & Disabled Housing - Consider notifying Healthcare partners - Consider Joint/ABAHO or regional messaging or talking points - Consider providing guidance to agencies with outdoor workers (e.g. EMS, police, Parks & Rec) 	All of the above, plus: <ul style="list-style-type: none"> - DOC may be activated - Consider distribution of N-95s at DPH sites for vulnerable populations** - Begin EMS trends tracking - Consider healthcare facility calls - Consider call center protocol - Begin Medical Respite and Sobering surge protocol 	All of the above, plus: <ul style="list-style-type: none"> - DEM IMT likely activated & EOC may be activated - DEM will likely: use Alert SF, inform Mayor's Office, consider Policy call, consider promoting and reviewing COOP plans to determine non-essential services, and consider DHR recommendation for non-essential outdoor workers to remain indoors - HSH will likely implement air quality protocol for unsheltered people - Per EPA guidance, SFUSD will likely decrease student outdoor activities 	All of the above, plus: <ul style="list-style-type: none"> - Review and consider publicizing libraries, grocery stores and malls that have HVAC (www.sf72.org) - Consider recommending closure of outdoor exercise facilities, such as pools - Consider recommending extending hours for city-owned community spaces such as Parks and Rec, libraries, and others.
Very Unhealthy = 201 to 300 (Purple) Respond if >24 hours or in a sustained or worsening wildfire situation*	HIGH	All of the above, plus: <ul style="list-style-type: none"> - Consider collaboration with DEM/JIC for press release/media response - Consider health advisory messaging around risks of outdoor events - Include cleaner air center locations in messaging 	All of the above, plus: <ul style="list-style-type: none"> - DPH DOC activated - Standard EMS protocols for surge apply - Consider regular healthcare facility calls 	All of the above, plus: <ul style="list-style-type: none"> - EOC likely activated - DEM likely to coordinate Board of Supervisors call - Consider expansion of N-95 distribution - Consider recommending free transit options 	All of the above, plus: <ul style="list-style-type: none"> - Consider activating cleaner air centers
Hazardous = 301 to 500 (Maroon) Respond if >24 hours or in a sustained or worsening wildfire situation*	VERY HIGH	All of the above, plus: <ul style="list-style-type: none"> - Consider regional calls/messages - Consider WEA, with actionable message 	All of the above, plus: <ul style="list-style-type: none"> - Consider recommending voluntary self-evacuation 		All of the above, plus: <ul style="list-style-type: none"> - Consider check-ins via calls and/or physical checks by agencies serving vulnerable populations



***1) NOTE: In the event of simultaneous Extreme Heat and Air Quality events, Extreme Heat response actions take precedence over Air Quality response. Please refer to the Extreme Heat Annex for more information. 2) Assumption made that with any increase in response, previous actions continue to be implemented and 3) there are time sensitive considerations (e.g., actions may be based on forecast; multiple days in any one category; extreme heat and/or judgment based on other factors). 4) Further Heat/Temperature considerations may exist (response may change if poor air quality in addition to heat and/or power outages for example). 5) Response language in messaging may be combined with predicted shifts and fluctuations in AQI**

**** Vulnerable Populations-** people with respiratory/cardiac diseases (COPD, asthma, coronary artery disease, history of myocardial infarction for example), people with diabetes, the elderly, pregnant individuals, unsheltered individuals; although children considered vulnerable population, N95s not designed for children

A. Response Levels

It is assumed that with any increase in response, the actions of previous response levels will continue to be implemented. Some actions may be dependent on time-sensitive considerations, such as the forecast, multiple days in one category, extreme heat, and judgement based on other factors.

Orange/Unhealthy For Sensitive Groups (AQI 101-150)

RESPONSE LEVEL: MEDIUM

Respond if within this range for >24 hours or in a sustained or worsening wildfire situation

DPH DOC and City EOC will not be activated.

Actions may include the following:

Responsible SFDPH Branch and/or Supporting City Department	Actions
<ul style="list-style-type: none"> SFDPH 	<p>May consider convening DPH Incident Management Team. DPH Incident Management Team includes, but is not limited to, the following DPH entities:</p> <ul style="list-style-type: none"> Director of Health Deputy Director of Health Health Officer Communications Director Director of Security PHEPR Director EMS Administrator
<ul style="list-style-type: none"> SFDPH – PHEPR 	<p>PHEPR will likely notify Integrated Steering Committee of air quality and potential for DOC activation if AQI worsens.</p>
<ul style="list-style-type: none"> SFDPH – PHEPR/PIO 	<p>PHEPR and DPH PIO will consider posting AQI health information on DPH website and DPH social media</p>
<ul style="list-style-type: none"> SFDPH – PHEPR 	<p>PHEPR will likely disseminate AQI health information (multilingual) to vulnerable population partners agencies via the Critical Partners List</p>
<ul style="list-style-type: none"> SFDPH – PHEPR 	<p>Assess Hospital Emergency Departments' status by Reddinet monitoring</p>
<ul style="list-style-type: none"> SFDPH – EMSA 	<p>Designee to assess EMS 911 volume; notify private ambulance company partners of potential increase in activity due to respiratory or cardiac issues</p>



<ul style="list-style-type: none"> • SFDPH – PHEPR • SFDPH Leadership • SFDPH - OSH 	Consider N95 respirator staging
<ul style="list-style-type: none"> • DEM 	Consider coordinating call with DPH, HSH, SFUSD, PIOs, NWS, BAAQMD and others.

Red/Unhealthy (AQI 151-200)

RESPONSE LEVEL: MEDIUM / HIGH

Respond if within this range for >24 hours or in a sustained or worsening wildfire situation

DPH DOC and City EOC may be activated.

Actions may include the following:

Responsible SFDPH Branch and/or Supporting City Department	Actions
<ul style="list-style-type: none"> • SFDPH – PHEPR/PIO/Health Officer 	Coordinate through ABAHO to ensure consistent regional messaging, recommendations, and talking points
<ul style="list-style-type: none"> • SFDPH – PHEPR 	Consider notifying Independent Senior & Disabled Housing, and Healthcare Partners
<ul style="list-style-type: none"> • SFDPH – IMT 	Consider activation of Department Operations Center based on forecast, expected resource needs, etc.
<ul style="list-style-type: none"> • SFDPH – Leadership • DEM 	Consider policy call
<ul style="list-style-type: none"> • SFDPH – PHEPR 	Consider distribution of N95 respirators and donning information at DPH sites for CCSF employees and vulnerable populations
<ul style="list-style-type: none"> • SFDPH –EMSA 	Track EMS trends in respiratory and cardiac patients. Implement additional ambulances as needed based on call volume.
<ul style="list-style-type: none"> • SFDPH – PHEPR 	Monitor hospital/clinic rates of cardiopulmonary patients through ReddiNet polling or hospital calls
<ul style="list-style-type: none"> • SFDPH – PHEPR 	Encourage healthcare partners to consider mass texts to respiratory patients regarding emergency inhalers and health information
<ul style="list-style-type: none"> • SFDPH – PHEPR 	Consider healthcare facility calls
<ul style="list-style-type: none"> • SFDPH – HR/PIO 	Consider providing guidance to agencies with outdoor workers (e.g. EMSA, SFPD, SFFD, MTA, Rec & Parks)
<ul style="list-style-type: none"> • SFDPH –Call Centers 	Consider encouraging Call Centers to distribute mass texts to respiratory patients regarding emergency inhalers and health information. Consider 311 Call Center protocol to include scripts and/or messaging on website
<ul style="list-style-type: none"> • SFDPH –Medical Respite and Sobering Center 	Begin surge protocol expanding availability for clients by providing additional chairs/mats



<ul style="list-style-type: none"> SFDPH – PHEPR Recreation and Parks 	Consider recommending closure of outdoor recreation and exercise facilities, such as pools. Consider recommending extending public community center hours for additional shelter-in-place options
<ul style="list-style-type: none"> SFDPH/311 	Coordinate planning with 311 to provide scripts or messaging on 311 website, and for healthcare Call Center as needed (see above).
<ul style="list-style-type: none"> HSA 	HSA to consider review and publication of libraries, grocery stores, and malls that have HVAC systems (www.sf72.org)
<ul style="list-style-type: none"> SFDPH – IMT 	Key DPH personnel will participate on all CCSF IMT or Policy Group conference calls
<ul style="list-style-type: none"> DEM 	DEM will likely send out AlertSF notification with Air Quality guidance and health information; inform Mayor's Office; consider policy call
<ul style="list-style-type: none"> HSH 	HSH will likely implement air quality protocol, begin wellness checks, and distribute water and N95 respirators to homeless population
<ul style="list-style-type: none"> SFUSD 	Per EPA guidance, SFUSD to consider decreasing student outdoor activities
<ul style="list-style-type: none"> DHR 	Consider issuing recommendation for non-essential outdoor workers to remain indoors. Consider promoting and reviewing COOPs to determine non-essential services.

Purple/Very Unhealthy (AQI 201-300)

RESPONSE LEVEL: HIGH

Respond if within this range for >24 hours or in a sustained or worsening wildfire situation

DPH DOC and City EOC will likely be activated.

Actions may include the following:

Responsible SFDPH Branch and/or Supporting City Department	Actions
<ul style="list-style-type: none"> SFDPH – DOC DEM JIC 	Consider collaboration with DEM/JIC for press release or other media response Consider health advisory messaging around risks of outdoor events
<ul style="list-style-type: none"> SFDPH – DOC/PIO 	Include cleaner air center locations in DPH messages to the public and to critical partners that reach vulnerable populations
<ul style="list-style-type: none"> SFDPH – DOC 	DPH DOC activated
<ul style="list-style-type: none"> SFDPH – EMSA/MHOAC 	Standard EMS protocols for surge apply
<ul style="list-style-type: none"> SFDPH – DOC 	Regular healthcare facility calls, as needed
<ul style="list-style-type: none"> SFDPH – DOC/EOC 	Consider expansion of N95 distribution
<ul style="list-style-type: none"> SFDPH – EOC 	Consider staffing EOC ESF 8 if requested
<ul style="list-style-type: none"> SFDPH – DOC Commander/Health Officer 	DPH will participate on all CCSF Board of



	Supervisors conference calls
• SFPD – DOC Commander/Health Officer	Health Officer to consider issuing public health advisory and/or recommendations regarding purple/very unhealthy air quality to help inform decision-making concerning the cancellation of permitted or non-permitted outdoor events
• SFMTA	Consider recommending free transit options
• DEM	Consider activating cleaner air centers

Maroon/Hazardous (AQI 301-500)

RESPONSE LEVEL: VERY HIGH

Respond if within this range for >24 hours or in a sustained or worsening wildfire situation

DPH DOC and City EOC will likely be activated.

Actions may include the following:

Responsible City Department and/or SFPD Branch	Actions
<ul style="list-style-type: none"> • SFPD – DOC/Health Officer • DEM • JIC 	Consider regional call to discuss unified messages
<ul style="list-style-type: none"> • SFPD – DOC/Health Officer • DEM • JIC 	Consider WEA with actionable message
<ul style="list-style-type: none"> • SFPD – Health Officer 	Consider recommending voluntary self-evacuation
<ul style="list-style-type: none"> • SFPD • HSA • CBOs 	Consider check-ins via calls and/or physical checks, via DAAS, meal delivery services and/or critical partners/agencies serving vulnerable populations

II SAN FRANCISCO RESPONSE OVERVIEW

A. Lead Response Agencies

In an air quality event, DPH will be the lead response agency and activities will be coordinated through the DPH Department Operations Center (DOC) in coordination with the City Emergency Operations Center (EOC), if activated. If other events are also occurring (e.g. Extreme Heat or Power outage), DPH may share unified command with other partners.

Department	Responsibilities during an Air Quality Event
DPH	<ul style="list-style-type: none"> • Assess medical impact of air quality event • Inform city agencies, medical community, responders, and the public of appropriate health precautions • Provide informational messages for, and outreach to, community-based organizations and the public to protect and promote health • Coordinate with health care partners regarding medical surge related to air quality • Coordinate with EMSA regarding system surge related to air quality



- Coordinated distribution of N95 respirators

B. Partner Agencies

City & County of San Francisco

During a reduced air quality event, support may be required from other city agencies. These may include:

Department/Agency/Organization	Responsibilities
Human Services Agency (HSA)	<ul style="list-style-type: none"> • Work with DPH to coordinate communication and events related to air quality • Identify locations of cleaner air centers • Communication with clients especially via the Department of Aging and Adult Services • Perform check-in by calls or physical visits for vulnerable populations
Department of Emergency Management (DEM)	<ul style="list-style-type: none"> • Coordinate citywide calls and assist in dissemination of public information • Send public alerts • Act as liaison between The National Weather Service and CCSF agencies • Coordinate city wide response

Support may also be required from additional City departments, agencies, and local organizations, including:

- | | | |
|---|---|--|
| <input type="checkbox"/> Fire Department | <input type="checkbox"/> Animal Care & Control | <input type="checkbox"/> Small Business Assoc. |
| <input type="checkbox"/> Police Department | <input type="checkbox"/> 3-1-1 | <input type="checkbox"/> Neighborhood |
| <input type="checkbox"/> Department of Public Works | <input type="checkbox"/> Mayor's Office on | <input type="checkbox"/> Emergency Response |
| <input type="checkbox"/> Public Utilities Commission | <input type="checkbox"/> Disability | <input type="checkbox"/> Teams (NERT) |
| <input type="checkbox"/> Recreation & Parks Dept. | <input type="checkbox"/> SF Unified School District | <input type="checkbox"/> Medical Reserve |
| <input type="checkbox"/> SF CARD – Community Agencies | <input type="checkbox"/> Other local CBOs | <input type="checkbox"/> Corps/Disaster |
| <input type="checkbox"/> Responding to Disaster | | <input type="checkbox"/> Healthcare Volunteers |

Regional/State/Federal Agencies

Coordination with regional, state, and federal agencies may initially occur via the EOC. Close ongoing communication and coordination may occur through the DOC. Key agencies may include:

- Local Health Departments
- Bay Area Air Quality Management District
- California Department of Public Health (CDPH)
- The Centers for Disease Control and Prevention (CDC)
- California Emergency Medical Service Authority (EMSA)
- California Office of Emergency Services (CalOES)
- National Weather Service (NWS) National Oceanic and Atmospheric Administration (NOAA)

C. Scale and Scope of the Response



The scale and scope of the response will depend on the duration and severity of the air quality event, which could be a few days to several weeks. Key factors that could impact the scale and scope of the response include:

- Access to health care
- Ability to receive and understand educational/prevention information regarding air quality emergencies
- Underlying health conditions in the population (e.g. mental illness, chronic health conditions)
- Source of pollution (wildfire, vehicle emissions, etc.)
- Temperature
- Significant morbidity and/or mortality
- Infrastructure issues, such as loss of power

III PUBLIC HEALTH RESPONSE OVERVIEW

A. DPH DOC Activation

NOTE: In the event of simultaneous Extreme Heat and Air Quality events, Extreme Heat response actions take precedence over Air Quality response. Please refer to the [Extreme Heat Annex](#) for more information.

The DPH DOC will likely be activated when the AQ Event requires a response that exceeds (or has the potential to exceed) the management capacity of DPH designated staff and meets at least one of the following criteria:

- Purple/Very Unhealthy AQI expected for >24 hours or in a sustained or worsening wildfire situation
- High profile public health situation or event
- Assessment by DPH that health systems are impacted, requiring city support and DPH can support

Refer to the DPH DOC Activation & Notification Protocol for specific activation & notification steps.

B. Proposed DOC Structure

It is recommended that the DOC Functions checked in the table below be activated immediately. See the guidance below regarding additional functions to consider activating:

Function	Activate Immediately	Function	Activate Immediately
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COMMAND	✓	Containment Branch	
• DOC Commander	✓	• Community Mitigation Group	
• Information Officer	✓	• Restriction, Exclusion, & Clearance Group	
• Safety Officer	✓	• Mass Prophylaxis Group	
• Liaison Officer	✓	• Isolation & Quarantine Group	
POLICY GROUP	✓	Medical Branch	✓
PLANS SECTION	✓	• Hospital Coordination Group	✓
• Situation Status Unit	✓	• LTCF Group	
• Resource Status Unit	✓	• Alternate Care Group	
• Documentation Unit	✓	• Outpatient Group	<i>consider*</i>
• Technical Specialist Unit		• Pharmacy Group	
• Demobilization Unit		• Pre-Hospital Care & Transport Liaison	✓
OPERATIONS SECTION	✓	• Mass Fatalities Liaison	<i>consider*</i>
Information & Guidance Branch		• Mass Care & Shelter Liaison	<i>consider*</i>
• Inquiries Group		Epidemiology, Surveillance, & Data Branch	<i>consider*</i>
• Content Group		• Investigation Group	
• Dissemination Group		• Surveillance Group	
Environmental Health Branch	<i>consider*</i>	• Data Group	✓
• Hazmat Group		Lab Branch	
• Food Group		• Lab Testing Group	
• Sanitation Group		• Lab Receiving/Documentation Group	
• Water Group	<i>consider*</i>	LOGISTICS SECTION	✓
Community Outreach Branch	✓	• Personnel Unit	<i>consider*</i>
• Prevention Group	<i>consider*</i>	• Supplies Unit	✓
• Response Group	✓	• Facilities Unit	<i>consider*</i>
		• Communication Equipment Unit	
		• Info Technology Unit	
		FINANCE SECTION	✓

* Consider activation depending on scale, scope and specific circumstances of event.

C. Operational Goals

- Assess the situation and threat
- Determine strategies to mitigate the threat and protect and promote health
- Coordinate closely with regional, state, and federal partners



D. Operational Objectives and Activities

Objectives and DOC Lead	Activities
Provide information and guidance Information and Guidance Branch	<ul style="list-style-type: none"> • Provide guidance to city officials, responders, and the public on the situation, prevention, treatment, and when to seek health care. • Provide information to the public regarding Cleaner Air Centers
Disseminate information & educate Community Outreach Branch	<ul style="list-style-type: none"> • Implement outreach and education strategies in community, with focus on most vulnerable neighborhoods and populations
Assess and provide technical expertise Policy Group/Situation Status Unit	<ul style="list-style-type: none"> • Assess AQI and temperature forecasts for City & County of San Francisco • Provide guidance on N95 respirators and/or air purifiers and/or air filtration
Support provision of medical care Medical Branch	<ul style="list-style-type: none"> • Monitor hospitals, primary care sites, and EMS for surge • Respond to requests for information, resources, and logistical support from medical providers. • If hospital and/or other facility surge plans have been activated and cannot meet population medical needs, activate alternate care sites.
Data collection Data Group	<ul style="list-style-type: none"> • Collect and analyze data on EMS, hospitals, staff response hours, volunteer deployments, etc.
Facilitate deployment of personnel Personnel unit	<ul style="list-style-type: none"> • If air quality event is due to a disaster in a neighboring region, facilitate mutual aid deployment of City personnel and volunteers to the affected region. • Provide Just-in-Time Training to deployed personnel • Ensure tracking of responder safety and health
Distribute N95 Respirators Supplies Unit	<ul style="list-style-type: none"> • Based on N95 guidance, distribute cache to designated groups

IV ADDITIONAL RESPONSE CONSIDERATIONS

The DPH Emergency Operations Plan (EOP) is the primary functional response guide for all DPH emergency response activities. However, because of the unique nature of an air quality event, the following modifications and/or considerations should be considered and applied when necessary to the appropriate operational section of the EOP.

A. Command Staff

- The Safety Officer should provide safety recommendations to employees who work outdoors and personnel deployed to areas impacted by disaster.

B. Policy Group

- The Policy Group should consider writing/approving policies related N95 respirators and alternatives for children and other groups for whom respirators are not intended and/or are dangerous to use.
- As much as possible, policies should be similar across the City and County of San Francisco, as well as the region. The group will work with other City Departments and regional policy groups such as the Association of Bay Area Health Officials (ABAHO) to develop consistent guidelines.
- Policy Group should consider the following critical issues:



- Possible reassignment of City employees who work outdoors
- Activation of Continuity of Operations Plans (COOP)
- Recommendations regarding cancellation of outdoor events and activities

C. Plans Section

- No additions to the core EOP.

D. Operations Section

Information & Guidance Branch

- If the AQ event is occurring regionally and/or affects the region, information and guidance should be coordinated regionally.
- Consider that the populations most vulnerable to reduced AQ events will have limited access to healthcare and indoor shelters
- Vulnerable populations will need continued care and outreach. This outreach and care may potentially expose caregivers to poor air quality (Home visits, Homeless Outreach Team, Primary Care Clinics and Hospitals). Consider this group of caregivers when providing guidance.

Medical Branch

- Monitor hospitals, primary care sites, and EMS for surge
- Respond to requests for information, resources, and logistical support from medical providers.
- If hospital and/or other facility surge plans have been activated and cannot meet population medical needs, activate alternate care sites.

Data Group

- Compile data collected during response, including hours worked by staff, number of respirators distributed, number of respiratory admissions to EDs, etc.

E. Logistics

- Additional resource needs for this event may include HEPA filters, ventilators, N95 respirators, respiratory medications, and other air filtration resources.

F. Finance

- Maintain tracking of costs incurred by deployment of city personnel/mutual aid and acquiring resources (N-95 respirators), as well as other costs.

IV RESOURCES

A. Glossary & Acronyms

- **AQI:** Air Quality Index. A standardized measure of pollutant levels that describes air quality levels. Developed by the EPA.
- **Cleaner Air Center:** An indoor location that is available for public congregation in which the air may be better quality than outdoor air. Cleaner Air Centers may or may not have filtration systems. See the Community Cleaner Air Shelter Guidance for more information.



- **BAAQMD:** Bay Area Air Quality Management District
- **Community Cleaner Air Shelter:** See Cleaner Air Center
- **COOP:** Continuity of Operations Plan
- **DOC:** Department Operations Center
- **EMSA:** Emergency Medical Systems Agency
- **EOC:** Emergency Operations Center
- **EPA:** Environmental Protection Agency
- **DEM:** Department of Emergency Management
- **HSA:** Human Services Agency
- **IMT:** Incident Management Team
- **ISC:** Integrated Steering Committee
- **NWS:** National Weather Service
- **PCCC:** Primary Care Call Center
- **PHEPR:** Public Health Emergency Preparedness and Response Branch
- **PM:** Particulate Matter
- **Reduced Air Quality:** The condition in which pollutants negatively impact the ambient air quality, with the potential to cause adverse health effects in the exposed population.
- **SFDPH:** San Francisco Department of Public Health

B. Messaging Templates

- Messaging templates can be found here: [S:\Activations\2018\11.03_Butte Camp Fire\2. Templates](#)
- Multilingual messaging can be found here: [S:\Community Planning\Climate & Health Preparedness\Air Quality](#)

C. Protocols

The following protocols can be found in the S Drive: *(development in process)*

- a. Call Center Protocol
- b. MSS&R Surge Protocol
- c. AQI Clinic Surge Protocol
- d. Community Wellness Check Protocol

D. Community Cleaner Air Shelter Guidance

Found Here:

[S:\Emergency Plans Library\EOP\3. Hazard Specific Annexes\D. Environmental Health Hazards\Air Quality\Community Cleaner Air Shelter Guidance_01.14.19](#)